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ABSTRACT

This report describes elementary and secondary private school tuition patterns in the United States for the 1985-86 academic year. The data cover tuitions of religiously affiliated and nonsectarian schools, as well as tuition charged at elementary and secondary grade levels. The patterns are based on data collected from a national probability sample of schools. The response rate to the survey was 84.6 percent. Nearly 6 million elementary and secondary school students were enrolled in over 25,000 private schools, which included regular schools and special purpose schools (i.e., schools for special education, alternative education, vocational education). Almost 94 percent required tuition payment. An overall measure of average tuition would oversimplify the complexity of private school tuitions. A schedule of several averages according to key private school characteristics (religious orientation and grade level) better describes tuition levels and more accurately portrays a typical tuition. Looking only at data from regular private schools charging tuition, tuition levels vary systematically according to school orientation and grade level. The lowest tuitions are in Catholic schools, and the highest in nonsectarian schools. Elementary schools have lower tuitions than schools at other grade levels. Even within categories of religious orientation, tuition levels vary by grade level. Analyses of tables of data include implications, technical notes, data definitions, and precision of estimates. The report provides survey notations and a research office contact. (CJH)

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Private School Tuition Patterns, 1985-86*

This bulletin describes elementary and secondary private school tuition patterns in the United States for the 1985-86 academic year. These patterns are based on data collected on behalf of the Center for Education Statistics from a national probability sample of private schools serving elementary and secondary grades.[1] While data that describe enrollment and costs in public schools have historically been available, private school data have not. This bulletin covers tuitions of religiously affiliated and nonsectarian schools, as well as tuition charged at elementary and secondary grade levels.

The analysis yields several conclusions. The most important is that a single, overall measure of average tuition may oversimplify the complexity of private school tuitions. A schedule of several averages (by a school's religious orientation and grade level) better describes tuition levels and more accurately portrays a typical tuition. First, tuition levels vary significantly and systematically by a school's orientation: The lowest tuitions are in Catholic schools, and the highest in nonsectarian schools. Second, tuition levels vary by a school's grade level: Elementary schools have lower tuitions than schools at other grade levels. Finally, even within categories of religious orientation, tuition levels vary by grade level.

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Difficulties in Representing the "Typical" Tuition

In the 1985-86 school year, private schools enrolled nearly 6 million elementary and secondary school students in over 25,000 schools across the United States.[2] In the 1985-86 Private School Survey, "private schools" included regular schools that serve elementary and secondary grades, as well as special purpose schools, such as special education schools, vocational education schools, and alternative education schools. Of the schools included in this survey, nearly 94 percent required the payment of tuition.

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*This analysis was conducted by Mike Schwartz of DRC Inc., under contract to the Center for Education Statistics, U.S. Department of Education.

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In the analyses that follow and in all the tables presented in this bulletin, the sample of schools has been restricted to: (1) only regular schools serving elementary and secondary grades; and (2) only schools which charge tuition.[3] The sample has been restricted to regular schools because special purpose schools differ in their funding and fee schedules from the majority of private (and public) schools. To treat all schools as one undifferentiated group would seriously alter estimates of average tuition[4] and might foster false impressions of tuitions in a typical school. Also, there are not many of these schools,[5] and correspondingly, the number of sampled schools is small. Consequently, separate estimates of tuition for these special categories of schools cause a high degree of sampling error. The resulting sample consists of 1,063 schools representing an estimated 21,625 schools in the United States during the 1985-86 academic year.

The mean tuition in the sampled schools is $1,484, while the median tuition is $1,100. The mean tuition has been disproportionately influenced by a few high tuition schools, resulting in a mean nearly $400 greater than the median. In fact, three-fourths of the reported tuitions are less than $1,600, while only 5 percent are $4,000 or greater.

In considering private school tuitions, the application of the mean and median may lead to misinterpretation because of the large variances in, or extremely broad ranges of, tuitions. In a distribution where 25 percent of all schools have tuitions less than $700, where 25 percent of all schools have tuitions greater than or equal to $1,600, where the lowest tuition charge is $50 and the highest is over $24,000, it becomes difficult to represent a typical tuition.[6]

One alternative to the use of a single average to represent all private school tuitions is to identify certain key school characteristics and present average tuitions for schools grouped or differentiated according to these characteristics. If tuitions are similar within these groupings, then each group average becomes more accurate and representative. Regarding private school tuitions, the key characteristics are the school's religious orientation and grade level.

Tuition by Religious Orientation

Table 1 shows selected tuition statistics for categories by a school's religious orientation. Corresponding standard errors for these estimates are in table 5.

There are substantial differences among the major categories of orientation for each of the tuition measures presented. For nonsectarian schools, both the mean and median tuition are over three times the equivalent value for Catholic schools. Similarly, only 28.1 percent of Catholic schools have tuitions greater than the median for the entire sample ($1,100), while tuitions in 97 percent of nonsectarian schools are greater than $1,100. The mean tuition in Catholic schools is $952. In nonsectarian schools, the mean is over three times this value ($3,326). For each of these measures, schools with a non-Catholic religious orientation (other) have values in the middle of these two extremes.

Table 1 also presents the results of a statistical test of the overall equality of medians for the three classes of orientation. The chi-square tests are significant at an alpha level less than 0.05. This indicates that the three medians are not equal.

TABLE 1: Selected Tuition Statistics by Schools' Religious Orientation, Private Schools, 1985-1986

RELIGIOUS ORIENTATION	SAMPLE SIZE	TUITION COSTS			NUMBER OF SCHOOLS
		MEAN	MEDIAN	PCT. GREATER THAN MEDIAN[1]	
Catholic	518	952	825	28.1	9,376
Other religious	407	1,484	1,200	56.0	9,547
Nonsectarian	138	3,326	3,000	97.0	2,702
TOTAL	1,063	1,484	1,100	49.0 [2]	21,625

CHI-SQUARE TEST FOR EQUALITY OF MEDIANS[3]

Pearson Chi-square = 212.289 d.f.= 2 $p < .05$
Liklihood ratio Chi-square = 246.260 d.f.= 2 $p < .05$

[1] Represents the percent of the group which have tuition values greater than the median for the entire sample.

[2] All values above the median constitute only 49.0% of the cases. Values equal to or less than the median constitute 51.0% of the sample.

[3] This tests against a null hypothesis that tuition medians for all categories of religous orientation are equal. The more general interpretation of this test considers that tuition levels (measured as above or below entire sample median) are independent of religous orientation. In this case, these tests are identical.

Tuition by Grade Level

Table 2 shows selected tuition statistics for categories of grade levels. Corresponding standard errors for these estimates are presented in table 5. Substantial tuition differences between elementary schools and the remaining two grade level categories are apparent: The mean tuition in elementary schools is $1,212; in combined schools, it is $1,920; and in secondary schools, it is $2,263. Median tuition in elementary schools is $950; in combined schools, it is $1,350; and in secondary schools, it is $1,630. Only 39.7 percent of elementary schools have tuitions greater than the sample median, while 60.8 percent of combined grade schools and 82.0 percent of secondary schools have tuitions greater than the sample median. Although tuition differences between elementary schools and each of the two other categories are statistically significant at an alpha level less than 0.05, differences between secondary and combined schools are not statistically significant at this level.

TABLE 2: Selected Tuition Statistics by Grade Level, Private Schools, 1985-1986

GRADE LEVEL	SAMPLE SIZE	TUITION COSTS			NUMBER OF SCHOOLS
		MEAN	MEDIAN	PCT. GREATER THAN MEDIAN[1]	
Elementary	639	1,212	950	39.7	14,492
Secondary	218	2,263	1,630	82.0	2,420
Combined	206	1,920	1,350	60.8	4,713
TOTAL	1,063	1,484	1,100	49.0 [2]	21,625

CHI-SQUARE TEST FOR EQUALITY OF MEDIANS(3)

Pearson Chi-square =	89.149	d.f.= 2	p < .05
Liklihood ratio Chi-square =	93.442	d.f.= 2	p < .05

[1] Represents the percent of the group which have tuition values greater than the median for the entire sample.

[2] All values above the median constitute only 49.0% of the cases. Values equal to or less than the median constitute 51.0% of the sample.

[3] This tests against a null hypothesis that tuition medians for all categories of grade span are equal. The more general interpretation of this test considers that tuition levels (measured as above or below entire sample median) are independent of grade span. In this case, these tests are identical.

The chi-square tests for the equality of medians for the three classes of grade level are also presented in table 2. The chi-square tests are significant at an alpha level less than 0.05, indicating that the three tuition medians are not equal to one another. However, it cannot be concluded that the median tuition in combined grade level schools is different from the median in secondary schools.

Tuition by Religious Orientation and Grade Level

Tuition levels vary by grade level within each category of religious orientation. Since some of the sample sizes were quite small, and since a difference in tuition medians between combined grade and secondary schools was not established, these schools were clustered and considered a single category. Thus two categories of grade level for each orientation group, or a total of six different groups of schools, are considered in table 3. Corresponding standard errors are presented in table 5.

TABLE 3: Selected Tuition Statistics, Private Schools, 1985-1986
by school's religious orientation and grade level

ORIENTATION	GRADE LEVEL[1]	SAMPLE SIZE	TUITION COSTS			NUMBER OF SCHOOLS
			MEAN	MEDIAN	PCT. GREATER THAN MEDIAN[2]	
Catholic	Elem.	361	764	700	16.9	7,633
Catholic	Sec./comb.	157	1,776	1,500	77.4	1,743
Other	Elem.	212	1,286	1,200	54.2	5,176
Other	Sec./comb.	195	1,719	1,300	58.1	4,371
Nonsec.	Elem.	66	3,013	2,400	98.8	1,683
Nonsec.	Sec./comb.	72	3,843	4,200	94.1	1,019
	TOTAL	1,063	1,484	1,100	49.0[3]	21,625

[1] Insufficient sample sizes in some cells required the combining of categories of grade level. Secondary and combined grade level schools were combined into one category.

[2] Represents the percent of the group which have tuition values greater than the median for the entire sample.

[3] All values above the median constitute only 49.0% of the cases. Values equal to or less than the median constitute 51.0% of the sample.

A variety of tuition levels is represented across these six categories of schools. Catholic elementary schools represent the lowest tuition group, with a mean tuition of only $764 and a median of $700. Only 16.9 percent of these schools have tuitions greater than the sample median. The secondary/combined grade level, nonsectarian schools represent the highest tuition group, with a mean of $3,843 and a median of $4,200; 94.1 percent of these schools have tuitions greater than the sample median. Tuitions in the other four groups are between these two extremes.

Average tuition levels vary by grade level even within categories of religious orientation. Table 4 presents the results of statistical tests of differences in mean and median tuition by grade level for each orientation group. The sample was divided into three groups of schools -- Catholic, other religious, nonsectarian. For each of these groups, the differences in tuition averages between elementary and secondary/combined schools were tested.

TABLE 4: Tests of Differences in Median Tuitions by Grade Level for Separate Groups of Schools Classified by Religious Orientation, Private Schools, 1985-86

RELIGIOUS ORIENTATION	TESTS OF DIFFERENCES IN MEDIAN TUITION BY SCHOOL'S GRADE LEVEL		
	Statistically Significant	Test Statistic	Degrees of Freedom
Catholic	YES	L^2=119.4 χ^2=100.1	1 1
Other Religious	NO	L^2= 3.5 χ^2= 3.5	1 1
Nonsectarian	YES	L^2= 15.1 χ^2= 14.8	1 1

Chi-square test for equality of medians, significance level adjusted for multiple comparisons. Critical value tested at 0.05 level.

Among the Catholic schools in the sample, the median tuition in secondary/combined schools is more than twice that found in elementary schools (see table 3). This difference is statistically significant at the 0.05 level (see table 4). Among schools with a religious orientation other than Catholic, the median tuition in elementary schools ($1,200) is similar to the median in secondary/combined schools ($1,300). This difference is not statistically significant. However, in nonsectarian schools the medians are statistically different.

Nonsectarian elementary schools, in general, have lower tuitions than nonsectarian secondary/combined schools. However, there are a few nonsectarian elementary schools with extremely high tuitions. This causes the mean of this group to be more similar to that of the secondary/combined schools, but essentially has no effect on the median. Although in schools with a religious orientation other than Catholic, median tuition does not vary by grade level, there are fewer schools with very low tuitions in the secondary/combined group and fewer schools with very high tuitions in the elementary group.

Implications

There are significant differences in tuition levels by a school's orientation and by grade level.[7] In addition, within categories of orientation, tuition levels vary by grade level. For example, it is more accurate to present median tuitions for Catholic elementary schools and Catholic secondary/combined schools separately than it would be to give only a single median for all Catholic schools.

This analysis has shown that it is more accurate to group schools with respect to both orientation and grade level. It might also be suggested that, since tuition differences between combined schools and secondary schools were not established, the use of only two categories (elementary, other) may be the most efficient classification scheme. Additional improvements in the analysis can be achieved by presenting average tuition levels for each of the six unique combinations of these two variables. But improvements in the accuracy of describing private school tuitions may be made at the expense of simplicity and efficiency.

In attempting to assess the effects and impacts of any policy for which tuition is a significant factor, the incorporation of an average tuition schedule by orientation and by grade level can substantially improve the description of average tuition and consequently lead to sounder policy analyses and modeling.

Technical Notes

1985-86 Private School Survey

All data in this bulletin are based upon the National Survey of Private Schools 1985-86 School Questionnaire sponsored by the U.S. Department of Education, Office of Educational Research and Improvement, Center for Education Statistics, Elementary and Secondary Division. The sample is a probability sample of 1,174 private schools chosen from a list of schools in existence in 1983. Seventy-five primary sampling units (area clusters) were selected, then individual schools were sampled from within these clusters. These data were collected from principals via mail and telephone interviews. The response rate was 84.6 percent. The survey includes information pertaining to school size, enrollments by grade, staff size, teacher salaries and in-kind payments, religious orientation, tuitions, and programs offered at the school.

Data Definitions According to Survey Questions

Tuition--the highest scheduled or published annual tuition charged for a full-time student, not including boarding fees, based upon the rate charged the first child in a family. Approximately 90 percent of all private schools lower their tuition rates for such reasons as financial need and the enrollment of additional students from the same family.[8]

Religious Orientation--the school's religious orientation--Catholic, other religious, nonsectarian.

Grade Level--the elementary school's highest grade is lower than 9 and lowest grade is lower than 7. A secondary school's lowest grade is higher than 6. A combined school's lowest grade is lower than 7 and highest grade is higher than 8.

Precision of Estimates

The estimates in the tables are based upon samples and are subject to sampling variability. Caution should be exercised in the interpretation of statistics based on a relatively small number of cases. The estimated standard error of a statistic (a measure of variation due to sampling) can be used to examine the precision obtained in the use of a particular sample. If all possible samples of the same size were surveyed from the population of interest, an interval of 1.96 standard errors above to 1.96 standard errors below an estimate would include the population value in 95 percent of the samples. Standard errors are presented in table 5 of this bulletin. The standard error does not take into account the effects of biases due to nonresponse or any other systematic error that may occur in the collection of data.

Analysis of Variance

These data were also analyzed using analysis of variance techniques. The findings were consistent with the results presented in this bulletin. However, as a consequence of uncertainty in meeting statistical requisites for the use of analysis of variance, the results were deemed inconclusive and the current method was employed.

For More Information

For more information about this bulletin or the 1985-86 Private School Survey, contact Jeffrey Williams, Elementary and Secondary Division, Center for Education Statistics, U.S. Department of Education, 555 New Jersey Avenue, NW., Washington, DC 20208. Phone (202) 357-6333.

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TABLE 5: Standard Errors

RELIGIOUS ORIENTATION	GRADE LEVEL[1]	MEAN [2]	MEDIAN [3]	PCT GREATER THAN MEDIAN [4]	NUMBER OF SCHOOLS [5]	REFERS TO ESTIMATE IN TABLE
Catholic	(all)	76	750/857	3.3	527	1
Other	(all)	123	1125/1300	4.8	868	1
Nonsec.	(all)	471	2400/3150	2.3	589	1
(all)	Elem.	127	900/1004	4.6	761	2
(all)	Sec.	241	1537/1800	4.1	173	2
(all)	Comb.	217	1150/1540	8.0	561	2
Catholic	Elem.	57	650/750	2.9	368	3
Catholic	Sec./comb.	171	1400/1546	5.5	226	3
Other	Elem.	101	1056/1250	5.9	724	3
Other	Sec./comb.	195	1137/1499	8.5	559	3
Nonsec.	Elem.	740	1840/3050	1.4	521	3
Nonsec.	Sec./comb.	436	3378/4513	4.5	152	3
	TOTAL	137	1050/1175	3.5	1,024	1,2,3

[1] Insufficient sample sizes in some cells required the combining of categories of grade level. Secondary and combined grade level schools were combined into one category.

[2] Estimated by computer program WESVAR. Ratio estimates using a half-sample replication technique (balanced repeated replication).

[3] Estimated by computer program WESVAR. Point estimates using a half-sample replication technique (balanced repeated replication). Method suggested by Woodruff. This column presents the lower and upper limits of the confidence interval for 1 standard error around the estimate.

[4] Estimated by computer program WESVAR. Ratio estimates using a half-sample replication technique (balanced repeated replication).

[5] Estimated by computer program WESVAR. Ratio estimates using a half-sample

Notes:

1 All data in this bulletin are based upon the National Survey of Private Schools 1985-86, sponsored by the U.S. Department of Education, Office of Educational Research and Improvement, Center for Education Statistics. This survey was conducted under contract by Westat, Inc. with the active cooperation and involvement of the Council for American Private Education and the National Catholic Educational Association. The sample was a probability sample of 1,174 private schools chosen from a list of schools in existence in 1983. Seventy-five primary sampling units (area clusters) were selected, then individual schools were sampled from within these clusters. The data in this bulletin were collected from building principals via mail and telephone interviews. The response rate was 84.6 percent. In addition to the data described in this bulletin for 1985-86, the Center for Education Statistics previously collected tuition data from private schools for the 1983-84 school year.

2 The numbers of schools and students reported are based upon estimates calculated specifically for this report from the 1985-86 Survey of Private Schools. Historically, these estimates have varied from study to study. See Mary Frase Williams, "Private School Enrollment and Tuition Trends," in The Condition of Education, U.S. Department of Education, Washington, D.C. for a discussion of differences in major private school data sources. It should be emphasized that tuition statistics presented in this report reflect averages of schools, not pupils. Each school is equally weighted in the calculation, regardless of the school's enrollment.

3 An estimated 6 percent of private schools charge no tuition (1985-86 Survey of Private Schools).

4 Primarily due to the inclusion of special education schools for the severely handicapped, estimates of average tuition in all private schools are substantially higher than average tuition in only regular elementary and secondary schools.

5 We estimate that vocational education schools constitute 0.1 percent of all private schools; special education schools constitute 5.0 percent of all private schools; and alternative schools constitute 6.3 percent of all private schools.

6 Reporting measures of dispersion for tuition--such as the standard deviation, the variance, or the coefficient of variation--indicates the relative variation in the distribution and provides information on the representativeness of the mean. However, the inclusion of more detailed and specific information about average or typical values is important in the overall description of (in this case) tuition levels, and serves as an important component in assessing potential changes in the demand for private education.

7 The interaction effect of grade level and the religious orientation on tuition was not tested.

8 Private Schools and Private School Teachers: Final Report of the 1985-86 Private School Study, contractor report, Center for Education statistics, OERI, U.S. Department of Education, March, 1987 (pp. 19-20).